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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,984	05/22/2001	Jonathan Abela	00-GR2-031	7518

23334 7590 06/09/2003

FLEIT, KAIN, GIBBONS,
GUTMAN & BONGINI, P.L.
ONE BOCA COMMERCE CENTER
551 NORTHWEST 77TH STREET, SUITE 111
BOCA RATON, FL 33487

EXAMINER

COLEMAN, WILLIAM D

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 06/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,984

Applicant(s)

ABELA ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I invention, claims 1-9 in Paper No. 9 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamanaka, U.S. Patent 5,998,862.
4. Pertaining to claim 1, Yamanaka discloses a semiconductor apparatus as claimed. See **FIGS. 1-22** where Yamanaka teaches an injection mold (column 17, line 6 teaches injection molding) for encapsulating an integrated circuit chip so as to form a semiconductor package containing the chip, said injection mold comprising: at least one injection cavity for housing the chip (not shown); and

an insert having a front part that forms part of the wall of the injection cavity and a transverse surface that lies parallel to one face of the chip, wherein the transverse surface of the insert has a roughness (look at **FIG. 3G** and **3H**, where **29** has a rough and smooth portion) that is chosen such that the face of the semiconductor package has a suitable roughness in a region corresponding to the transverse surface of the insert.

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5. Pertaining to claim 2, Yamanaka teaches the injection mold according to claim 1, wherein the insert protrudes into the interior of the injection cavity so as to form a hollow (the hollow is seen as part of the plastic housing 29) in the package in the region corresponding to the transverse surface of the insert.
6. Pertaining to claim 3, Yamanaka teaches the injection mold according to claim 2, further comprising a blind annular space around at least a part of the insert that emerges in the injection cavity (the annular ring is part of the indent on the upper surface of 38, 39 and 40 of FIGS. 5A, 5B and 5C).
7. Pertaining to claim 4, Yamanaka teaches the injection mold according to claim 1, wherein the front part of the insert has a protruding transverse surface surrounded by an annular shoulder that is set back with respect to the protruding transverse surface (the same elements of claim 3 are applied).
8. Pertaining to claim 5, Yamanaka teaches the injection mold according to claim 4, further comprising a blind annular space around at least a part of the insert that emerges in the injection cavity (the blind annular space is above semiconductor die 2).
9. Pertaining to claim 6, Yamanaka teaches the injection mold according to claim 1, further comprising a blind annular space around at least a part of the insert that emerges in the injection cavity.
10. Pertaining to claim 7, Yamanaka teaches the injection mold according to claim 6, wherein the annular space is enlarged in a part remote from the injection cavity.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka U.S. Patent 5,998,862 in view of Herbst, U.S. Patent 5,913,110.

13. Yamanaka discloses a semiconductor process substantially as claimed.

Pertaining to claim 8, Yamanaka teaches the injection mold according to claim 1, further comprising: first and second parts between which the injection cavity is defined (Yamanaka teaches that the first and second parts are considered as an upper and lower part), wherein the first part carries the insert in such a way that the transverse surface of the insert lies parallel to the parting line of the first and second parts. However, Yamanaka fails to teach that the second part is provided with at least one movable demolding member opposite the insert and means for keeping the demolding member bearing on the package when the second part of the mold is separated from the first part of the mold during demolding. Herbst teaches a demolding member used in injection molding for semiconductor devices. In view of Herbst, it would have been obvious to one of ordinary skill in the art to incorporate at least one movable demolding member in the Yamanaka semiconductor apparatus because demolding is required to remove the semiconductor device from the apparatus (see claim 7 of Herbst).

14. Pertaining to claim 9, Yamanaka fails to teach the injection mold according to claim 8, wherein the first part of the mold includes pushers for demolding the package. Herbst teaches

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that a encapsulated semiconductor device is pushed for demolding packages. In view of Herbst, it would have been obvious to one of ordinary skill in the art to incorporate pushers in the demolding apparatus to remove the encapsulated semiconductor device from the injection molding apparatus (column 6, lines 5-68, i.e., the mold is pushed apart to remove the encapsulated semiconductor device).

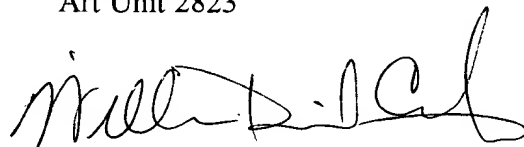
Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004. The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

W. David Coleman
Primary Examiner
Art Unit 2823



WDC
May 22, 2003